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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,283	11/06/2006	Kassem Ghorayeb	94.0052	3037

7590 12/15/2009  
Danita J.M. Maseles  
Schlumberger Technology Corporation  
5599 San Felipe  
suite 400  
Houston, TX 77056-2722

EXAMINER
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ALHIJA, SAIF A

ART UNIT	PAPER NUMBER
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2128

MAIL DATE	DELIVERY MODE
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12/15/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,283	<b>Applicant(s)</b> GHORAYEB ET AL.	
	<b>Examiner</b> SAIF A. ALHIJA	<b>Art Unit</b> 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/25/09</u> .  | 6) <input type="checkbox"/> Other: _____                          |

Art Unit: 2128

**DETAILED ACTION**

1. Claims 1-4 have been presented for examination.

Claim 5 has been cancelled.

**Response to Arguments**

2. Applicant's arguments with respect to claims 1-4 have been considered but are moot in view of the new ground(s) of rejection.

**PRIOR ART ARGUMENTS**

i) Following Applicants amendments the previous rejection is withdrawn in view of the 103 rejection presented below.

**PRIORITY**

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Priority date is 23 November 2002.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claim(s) 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Haugen et al. "Simulation of Independent Reservoirs Coupled by Global Production and Injection Constraints"**, hereafter **H** in view of **Briens et al. "Application of Sequential Staging of Tasks to Petroleum Reservoir Modeling"**, hereafter **B** in view of **Watts U.S. Patent No. 6108608**, hereafter **W**.

**Regarding Claim 1:**

**H discloses** A method of controlling the coupling of multiplatform reservoir and network simulators comprising:

initiating a first reservoir simulation for a first reservoir in a first reservoir simulator, the first reservoir simulation using a first fluid model; (**H. "An oil or gas field may comprise a number of isolated reservoir units, each of which may have been studied separately with their own simulation models" as well as "The individual simulation models are still run as separate processes..."**)

initiating a second reservoir simulation for a second reservoir in a second reservoir simulator, the second reservoir simulation using a second fluid model; (**H. "An oil or gas field may comprise a number of isolated reservoir units, each of which may have been studied separately with their own simulation models" as well as "The individual simulation models are still run as separate processes..."**)

**H does not disclose however B discloses, excluding the first and second reservoir aspect which is recited in H above**, synchronizing the advancement through time of the first reservoir simulation executing on a first computing device and the second reservoir simulation executing on a second computing device; (**B. Page 431, left column, second to last paragraph, "synchronization of parallel events"**)

performing a production operation based on the first reservoir simulation of the first reservoir simulator and the second reservoir simulation of the second reservoir simulator the first reservoir simulator performed on the first computing device and the second simulation performed on the second computing device using the converted hydrocarbon fluid streams. (**B. Page 428, top right, production rates. Equation 1**) (**B. Introduction, paragraph 1, hydrocarbon and non-hydrocarbon components**)

Art Unit: 2128

**B does not disclose** translating each of first hydrocarbon fluid stream of the first reservoir simulation and a second hydrocarbon fluid stream of the second reservoir simulation to a common fluid model of a controller by converting pseudo components of each of the first hydrocarbon fluid stream and the second hydrocarbon fluid stream to a super set of pseudocomponents used in the first reservoir simulator and the second reservoir simulator.

**However W discloses, excluding the first and second reservoir aspect which is recited in H above,** translating each of a plurality of hydrocarbon fluid streams to a common fluid model of a controller by converting pseudo components of each of the plurality of hydrocarbon fluid streams to a super set of pseudocomponents used in the reservoir and network simulators executing on a computer. **(W. Abstract)**

**It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the pseudocomponent aspect of multi component fluid flow as discussed in W for the multiple independent reservoir simulation of H as well as the synchronization and production operation in parallel simulation of B since first the pseudocomponent aspect of W is “particularly useful in estimating properties and/or behavior of fluids contained in hydrocarbon-bearing, subterranean formations or in hydrocarbon processing facilities.” (W. Column 1, Lines 13-16) and further the synchronization and production operations of B through parallel processing result in a substantial decrease in processing time as well as promoting good load balancing for the simulation. (B. Page 432, Conclusions)**

**Regarding Claim 2:**

**See rejection of claim 1.**

**Regarding Claim 3:**

**The reference discloses** The controller of claim 2 additionally comprising means for apportioning global production and injection constraints between simulation tasks of the first reservoir simulator and the second reservoir simulator. **(B. Page 428, top right, production/injection) (H. “But they are coupled to a master process which handles the global production and injection constraints...”)**

**Regarding Claim 4:**

Art Unit: 2128

**The reference discloses** The controller of claim 3 additionally comprising means for balancing reservoir and surface networks. **(B. Introduction, paragraph 2, flow/material balancing. Page 432, left column, last two paragraphs, load balancing)**

**Conclusion**

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. All Claims are rejected.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAIF A. ALHIJA whose telephone number is (571)272-8635. The examiner can normally be reached on M-F, 11:00-7:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571) 272-22792279. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. *Informal or draft communication, please label PROPOSED or DRAFT*, can be additionally sent to the Examiners fax phone number, (571) 273-8635.

Art Unit: 2128

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAA

/Kamini S Shah/  
Supervisory Patent Examiner, Art Unit 2128

December 3, 2009